

ENGINE	CONTROL	LER HIGH
		ECH

Quick Start Guide Ver 01 10 August 2020

ower Connection	Nominal	max	min	Connector Type
Power Supply	5V DC	5.25	4.5	USB-C
Power Consumption	10W	15	0.9225	
thernet Connection				
Suggested Adapter				USB 3.0
AIN 50 PIN CONNECTOR	Nominal	mx	min	PIN #
CRANK+ (*)	5V	2.2 5.5V	-0.5 1.5V	2
CRANK - CAM + (*)	GND			4
	5V	2.2 5.5V	-0.5 1.5V	6
CAM -	0V			7
AI0+	0 10V	15	0	50
AI0-	-10 0V	0	-15	49
AI1+	0 10V	15	0	48
Al1-	-10 0V	0	-15	47
AI2+	0 10V	15	0	46
Al2-	-10 0V	0	-15	45
AI3+	0 10V	15	0	44
AI3-	-10 0V	0	-15	43
AI4+	0 10V	15	0	20
AI4-	-10 0V	0	-15	17
AI5+	0 10V	15	0	19
AI5-	-10 0V	0	-15	21
AI6+	0 10V	15	0	22
AI6-	-10 0V	0	-15	23
AI7+	0 10V	15	0	26
AI7-	-10 0V	0	-15	24
CAN LOW				27
CAN HIGH				28
Sampling resolution - Base	50kHz / 0.5deg			
Sampling resolution - Advanced	200kHz / 0.1deg			
Max RPM	7000			
ROCESSOR				
CPU		Quad Core Cortex-A72	2;64-bit SoC @1.5GHz	
RAM		2GB LPDDR4;	2400 SDRAM	
STORAGE		16	GB	
OS		Linux	Based	





All information, illustrations, and specifications in this manual are representative views only. Due to continuous product improvements, the information, illustrations, and specifications may be modified to explain updates and improvements. WM International Engineering reserves the right to make any changes at any time.

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SPEED OVERSIGHT UNIT 0

https://www.wminternational-engineering.com/products

ECHO-02-08-A

OVERVIEW

The ENGINE CONTROLLER HIGH SPEED OVERSIGHT UNIT or ECHO module is a powerful COMBUSTION DIAGNOSTICS tool. It is designed to perform fast calculations and allow real time combustion feedback. Additionally, ECHO's architecture is open to allow the user to tailor the code for specific applications.

KIT CONTENT

The kit includes:

- 1. ECHO module
- 2. Power Cable
- 3. ETHERNET to USB 3.0 adapter
- 4. ETHERNET cable

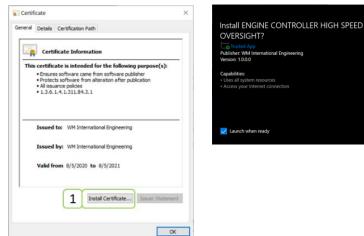
User requirements:

- 1. CAM and CRANK
- 2. Cylinder Pressure Sensor Input (up to eight channels on base module)
- 3. Manifold pressure sensor connection (optional)
- 4. CAN cable (optional)



(1) **ECHO** certificate installation (first time users only) (2) ECHO APP installer

Files accessed at www.wminternational-engineering.com/ECHO



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ETHERNET

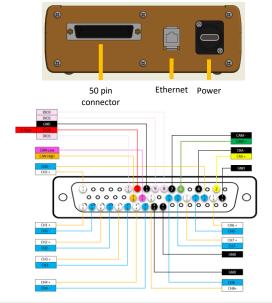
POWER

AN A

POWER UP AND CONNECTING TO ECHO

- 1. Power up ECHO via a 5V DC USB-C connector.
- 2. Connect the Ethernet to PC.
 - If using an adapter, use the USB 3.0 adapter from the kit.
- 3. Connect CAM and CRANK signals using the 50 pin harness provided See #7 for sensor configuration.
- 4. Connect the analog signals. Cylinder pressures Injector current traces Fuel injection pressures
 - Manifold pressure
- 5. Connect the CAN cable to ECU.

Connection used to provide combustion feedback to the controller.



5 **CONNECT AND RUN**

Power up the ECHO box, connect it to the PC, and press the Play button. If the connection is successful, status bar will indicate that ECHO is "Running".

The measure page allows the user to:

✓ to connect to ECHO,

CAN

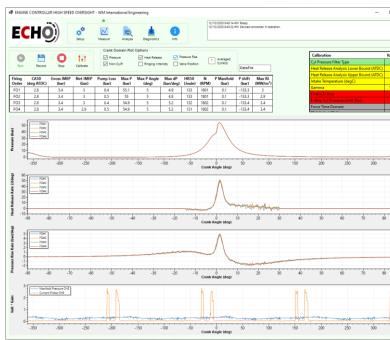
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PCYL

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- ✓ view/record data,
- ✓ calibrate combustion analysis parameters



b **MODIFY ANALYSIS CODE**

Users can modify the default combustion analysis C source code Analysis.c and upload to ECHO via the PC software:

- > Press the **Algorithm** button on the **Setup page** as show here
- > Select the Analysis.c file in popup window as shown
- Click "Open".

File will be uploaded to ECHO and recompiled with its embedded library.

USER SPEFICIC SETTINGS

CAM and CRANK sensor

ECHO can be set up to process a wide variety of VRS and HALL effect sensors via jumper settings within the box module. Please contact WM International with your system requirements.

FILTER SETTINGS

The default filters applied are 25kHz. Filters are applied to limit signal noise. FILTER SETTINGS may be adjusted per user request.

QUICK START GUIDE



'he setup i	bage all	ows the user to:
	-	are update,
<pre>change</pre>	data file	e settings,
0		0,
view en	igine co	nfiguration
	Setup	Measure Diagnostics Info
Firmware Algorithm Data File Setting No path sel Save To File Name		Time (cec)
Data File Setting	Record Cycles	Time (sec)
Data File Setting INo path set Save To File Name DataFile ingine Configuration	Record Cycles	
bata File Setting INo path set Save To File Name DataFile	Record Cycles	
Data File Setting INO path set Save To File Name DataFile ngine Configuration	Record Cycles	
Anta File Setting INO DATA Save To File Name DataFile Ingine Configuration Parameters	Record Cycles	
Anta File Setting No. Dath sei Save To File Name DataFile Parameters Number of Cylinders	Record Cycles 1 Value 4	
Ata File Setting See To No. path set File Name DataFile ngine Configuration Parameters Number of Cylinders Engine Bore (mm)	Record Cycles	
Ata File Setting bio ath set save to File Name DataFile Ingine Configuration Parameters Number of Cylinders. Engine Bore (mm) Compression Ratio	Record Cycles 1 Value 4 85.4 17.3 90	

The diagnostic page allows the user to troubleshoot

✓ connection issues

✓ engine synchronization issues

Device Diagno	stics					-		×
Serial Number	Firmware Version	State	Last Fault	Sync Attempts	Sync Failures	CAN Sent	CAN Failed	
LJ8P8GPJ	1100	RUNNING	NO_ERROR	1	0	6950	0	



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📮 fernware				
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Videos	🔒 Analysis 🕒	8/19/2020 13:13	CFR	1310
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